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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,200	08/20/2003	Makoto Baba	112857-422	5741
29175	7590	02/09/2006	EXAMINER	
BELL, BOYD & LLOYD, LLC P. O. BOX 1135 CHICAGO, IL 60690-1135			GRANT, ROBERT J	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/644,200

Applicant(s)

BABA ET AL.

Examiner

Robert Grant

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-7,10 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-7,10 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. (US 5,534, 366) in view of Watanabe et al. (US 6,492,058) in view of Suzuki et al. (US 4,659,636) in view of Kobayashi (US 5,436,969) in further view of Hasegawa (US 5,929,600) in view of Torri (US 6,491,536).

As to claim 1, Hwang expressly discloses, in figure 1, a battery pack comprising: a battery block (18) that houses one or more batteries in a battery package (Column 7, lines 4-5); said batteries being arranged in the battery block according to a given polarity (Figure 5, element 48), a circuit block (14) housing a circuit in a circuit package (Column 7, line 6), the circuit having a measurement function associated with at least one of a use condition of the batteries, a measurement function associated with performance of the batteries, and a protection function to protect the batteries (Column 3, lines 29-34); and an outer case (16) capable of fitting in and housing the battery block and the circuit block, wherein the battery block and the circuit block can be independently removed and replaced from the outer case (Column 7, lines 7-10), and wherein an inside dimension of the outer case substantially equals a total outside

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dimension of the battery block and the circuit block (An inside dimension of the outer case is taken to mean the open space inside of the battery pack where space for the battery block and circuit block is provided. Therefore, as can be seen in figure 2, the circuit block (14) consumes the space provided for the circuit block (Figure 1, element 22). The battery block (18) can also be seen in figure 2 consuming the space provided (figure 1, element 20)). Hwang does not expressly disclose wherein the battery block has a connection terminal on a side facing the circuit block and the circuit block has a connection on a side facing the battery block, said connection terminal connected to the tab, and a part of the connection terminal which is exposed out of the battery package and circuit package includes a blade spring in a tranche shape, wherein at least one of the battery package and the circuit package includes a hermetic package, and wherein the hermetic package has a hermetic structure that is formed by fitting together an open top lower package and an upper package having a groove corresponding to an opening of the lower package by press fitting, the batteries are cylindrical lithium ion batteries, or connected to each other with a metal tab wherein the tab is made by punching out a metal plate material into a strip shape and bending the strip in a given shape.

Watanabe discloses a battery pack (Figure 2) wherein the battery block (Figure 2, Element 2) has a connection terminal (Figure 11, seen on the battery, but not referenced) on a side facing the circuit block (Figure 2, Element 6), said connection terminal connected to the tab (Figure 11, element 1110) and the circuit block has a connection terminal (Figure 11, Element 1110) on a side facing the battery block.

Watanabe also teaches that hermetical sealing can eliminate damage to protective

circuits that can be caused by electrolyte leakage or moisture ingress (Column 1 lines 53-59). Therefore it would have been obvious to a person of ordinary skill at the time of this invention to provide a hermetical seal to Hwang's package as taught by Watanabe in order to protect against electrolyte leakage and moisture ingress. Suzuki discloses (Figure 1), wherein a structure that is formed by fitting together an open top lower package (Element 18b) and an upper package having a groove (Element 19) corresponding to an opening of the lower package by press fitting. It would have been obvious to a person of ordinary skill in the art at the time of this invention to modify the battery pack of Watanabe with the press fitting structure as taught by Suzuki in order to provide an even sturdier seal. Kobayashi discloses in figure 5, a blade spring connection terminal in a tranche shape (Element 77-1). It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine Kobayashi's blade spring terminals to make the connection between the circuit package and the battery package, as it would provide a biasing force to keep the electrical contacts firmly in place. Hasewaga disclose cylindrical lithium ion secondary batteries (Figure 2, elements 12 and 14, Column 3, lines 18-20). It would have been obvious to one having ordinary skill in the art at the time of this invention to use the cylindrical lithium batteries as taught by Hasewaga in order to have the inherently stronger physical properties that a cylinder offers, as well as the greater power density that Lithium ion cells offer. Torii teaches of making electrical contacts wherein the tab is made by pouching out a metal plate material into a strip shape and bending the strip in a given shape (Column 3, lines 61-65). It would have been obvious to one of ordinary

skill in that art that electrical connection tabs can be made by pouching out a metal plate material into a strip shape and bending the strip in a given shape.

3. Claim 5 and 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang in view of Watanabe in view of Suzuki in view of Kobayashi as applied to claim 1 above, in further view of Noh (US 6,387,567).

As to claim 5, Hwang, Watanabe, Suzuki, and Kobayashi disclose all the limitations in which claim 5 is dependent upon, though they do not expressly disclose that the connection terminals are insert molded in the battery package and the circuit package. Noh teaches of creating a hermetic seal in which the terminals (Figure 3, elements 25 and 27) are insert molded (Column 5, lines 35-43). It would have been obvious to a person having ordinary skill in the art at the time of this invention to incorporate Noh's insert molded terminals into Watanabe package design because fixed terminals that had a hermetic seal molded around them are known to provide a more reliable seal than terminals that have not been insert molded into a hermetically sealed package.

As to claim 6, Noh discloses an insert molded terminals that branch out from the hermetically sealed package. Therefore using Noh's hermetically sealed design with Watanabe's battery pack and a circuit pack would yield the connection terminals and a tab of the battery have branched parts on each edge and are connected by engaging

the branched parts of the connection terminals and the branched parts of the tabs of the battery.

~~4,~~ Claim 7 is rejected under 35 U.S.C. 103(a) as being anticipated by Hasegawa (US 5,929,600) in view of Mito et al. (US 5,818,198) in view of Torii (US 6,491,536) in view of Noh (US 6,387,567).

As to Claim 7, Hasegawa expressly discloses a battery pack, in figure 2 comprising: an outer case (34A and 34B) for housing one or more batteries (12 and 14) and a circuit (28) having at least one of a measurement functions associated with a use condition of the batteries (Column 3 lines 41-50), a measurement function associated with performance of the batteries (Column 3 lines 41-50) and a protection function to protect the batteries (Column 4 lines 38-54), wherein a tab at both ends is connected to a cathode and an anode of the battery and a central tab is connected to a midpoint lead (Figure 1, elements 20, 24, 26), wherein the midpoints lead is adapted to measure a potential between two batteries (Column 3, lines 42-45). Hasegawa does not expressly disclose wherein inside of the outer case is completely separated into two chambers by a partition wall and the batteries and the circuit are separately housed in the two chambers, respectively, or wherein the tabs are arranged on a lower partition wall by insert molding and the tabs are made by punching out a metal plate material into a strip shape and bending the strip in a given shape. Mito discloses wherein inside of the outer case is completely separated into two chambers by a partition wall (figure 4a, element 26) and the batteries and the circuit are separately housed in the two

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chambers, respectively (column 10, lines 9-16), and wherein the outer case (figures 4a and 4b) comprises: an open top lower case with an inside that is sectioned into a plurality of chambers by a lower partition wall (Figure 4 a); and an upper case having an upper partition wall with a groove (Figure 4b, element 28) corresponding to the lower partition wall such that the two chambers have hermetic structures (Column 3, lines 2-7) by formation of the partition wall by press fitting the lower partition wall (Figure 4a, element 26) into the groove of the upper partition wall (Figure 4b, element 28) and by forming a joint at an opening of the lower case. It would have been obvious to a person having ordinary skill in the art at the time of this invention to add Mito's teaching of physically separating the circuit and the battery to Hasegawa battery pack, in order to protect the circuit from possible damage if the battery begins to leak. Torii teaches of making electrical contacts wherein the tab is made by pouching out a metal plate material into a strip shape and bending the strip in a given shape (Column 3, lines 61-65). It would have been obvious to one of ordinary skill in that art that electrical connection tabs can be made by pouching out a metal plate material into a strip shape and bending the strip in a given shape. Noh teaches wherein the tabs (Figure 3, elements 25 and 27) are insert molded (Column 5, lines 35-43). It would have been obvious to a person having ordinary skill in the art at the time of this invention to incorporate Noh's insert molded terminals into Watanabe package design because fixed terminals that had a hermetic seal molded around them are known to provide a more reliable seal than terminals that have not been insert molded into a hermetically sealed package.

5. Claim 10- 11 is rejected under 35 U.S.C 103(a) as being unpatentable over Hasegawa in view of Mito in further view of Hwang.

As to claims 10 and 11, Hasegawa in view of Mito expressly discloses where the battery pack has branched parts (Column 6, lines 55-56 and lines 58-59). Hasegawa in view of Mito does not expressly disclose that the outer case contains tabs for electrical connection. Hwang expressly discloses that the outer case contains branched tabs (Column 3, lines 14-16). The use of outwardly biased contacts is commonly used in the art, as it will provide a force to keep the contacts connected. It is also widely known that a completely hermetic structure cannot be made for a battery pack because of the need for exposed terminals. Though, fixed terminals that breach the hermetic seal are more desirable than non-fixed ones. Therefore it would have been obvious to a person of ordinary skill in the art at the time of this invention to replace Hasegawa in view of Mito's use of battery and circuit terminals that breach the hermetic wall with Hwang's use of fixed terminals that electrically interconnect the battery and circuit through a physical barrier (such as Mito's hermetically sealed wall), to provide a securer hermetic seal by eliminating an physical contact between the circuit and battery and by having only fixed electrical connectors breaching the seal (in which the seal was created around the connectors.)

Response to Arguments

6. Applicant's arguments filed on 6-9-05 have been fully considered but they are not persuasive. Applicant's arguments with respect to claims 1,5-7, 10-11 have been considered but are moot in view of the new grounds of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Grant whose telephone number is 571-272-2727. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RG


Adolf Deneke Berthens
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